



# SEQUENCE LISTING

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<120> MODULATORS OF BODY WEIGHT, CORRESPONDING  
NUCLEIC ACIDS AND PROTEINS, AND DIAGNOSTIC AND THERAPEUTIC  
USES THEREOF

<130> 600-1-087/CIPDIVCON

<140> 09/686,647

<141> 2000-10-10

<150> 09/183,374

<151> 1998-10-30

<150> 08/347,563

<151> 1994-11-30

<150> 08/292,345

<151> 1994-08-17

<160> 42

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2793

<212> DNA

<213> murine

<400> 1

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tgcctatcca gaaagtccag gatgacacca aaaccctcat caagaccatt gtcaccagga 180
tcaatgacat ttcacacacg cagtcggtat ccgccaagca gagggtcact ggcttggtact 240
tcattcctgg gcttcacccc attctgagtt tgtccaagat ggaccagact ctggcagtct 300
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gaagaaacct tggcttccag gggctctcag gagaagagag ccatgtgcac acatccatca 660
ttcatttctc tccctcctgt agaccaccca tccaaaggca tgactccaca atgcttgact 720
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acacagctgg aaactcccaa gcagcacacg atggaagcac ttattttattt attctgcatt 1020
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ctattttggga tggatctgaa gcaaggcatc agcttttttca ggcttttgggg gtcagccagg 1080
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<210> 2  
<211> 167  
<212> PRT  
<213> murine

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<400> 2
Met Cys Trp Arg Pro Leu Cys Arg Phe Leu Trp Leu Trp Ser Tyr Leu
 1             5             10             15
Ser Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys
      20             25             30
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr
      35             40             45
Gln Ser Val Ser Ala Lys Gln Arg Val Thr Gly Leu Asp Phe Ile Pro
      50             55             60
Gly Leu His Pro Ile Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala
65             70             75             80
Val Tyr Gln Gln Val Leu Thr Ser Leu Pro Ser Gln Asn Val Leu Gln
      85             90             95
Ile Ala Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala
      100            105            110
Phe Ser Lys Ser Cys Ser Leu Pro Gln Thr Ser Gly Leu Gln Lys Pro
      115            120            125
Glu Ser Leu Asp Gly Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val
      130            135            140
Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Ile Leu Gln Gln
145            150            155            160

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Leu Asp Val Ser Pro Glu Cys  
165

<210> 3  
<211> 700  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> 1, 2, 3, 5, 6, 29, 30, 31, 581  
<223> n = A,T,C or G

<221> misc\_feature  
<222> (0)...(0)

<400> 3  
nnngnnngttg caaggcccaa gaagcccann ntcctgggaa ggaaaatgca ttggggaacc 60  
ctgtgcggtat tcttgtggct ttggccctat cttttctatg tccaagctgt gcccatccaa 120  
aaagtccaag atgacaccaa aaccctcatc aagacaattg tcaccaggat caatgacatt 180  
tcacacacgc agtcagtctc ctccaaacag aaagtcaccg gtttggactt cattcctggg 240  
ctccacccca tcctgacctt atccaagatg gaccagacac tggcagtcta ccaacagatc 300  
ctcaccagta tgccttccag aaacgtgatc caaatatcca acgacctgga gaacctccgg 360  
gatcttcttc acgtgctggc cttctctaag agctgccact tgccctgggc cagtggcctg 420  
gagaccttgg acagcctggg ggggtgtcctg gaagcttcag gctactccac agaggtgggtg 480  
gccctgagca ggctgcaggg gtctctgcag gacatgctgt ggcagctgga cctcagccct 540  
gggtgctgag gccttgaagg tcactcttcc tgcaaggact nacgttaagg gaaggaactc 600  
tggtttccag gtatctccag gattgaagag cattgcatgg acaccctta tccaggactc 660  
tgtcaatttc cctgactcct ctaagccact cttccaaagg 700

<210> 4  
<211> 167  
<212> PRT  
<213> Homo sapiens

<400> 4  
Met His Trp Gly Thr Leu Cys Gly Phe Leu Trp Leu Trp Pro Tyr Leu  
1 5 10 15  
Phe Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys  
20 25 30  
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr  
35 40 45  
Gln Ser Val Ser Ser Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro  
50 55 60  
Gly Leu His Pro Ile Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala  
65 70 75 80  
Val Tyr Gln Gln Ile Leu Thr Ser Met Pro Ser Arg Asn Val Ile Gln  
85 90 95  
Ile Ser Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala  
100 105 110  
Phe Ser Lys Ser Cys His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu  
115 120 125  
Asp Ser Leu Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val  
130 135 140  
Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln  
145 150 155 160

Leu Asp Leu Ser Pro Gly Cys  
165

<210> 5  
<211> 166  
<212> PRT  
<213> Murine

<400> 5  
Met Cys Trp Arg Pro Leu Cys Arg Phe Leu Trp Leu Trp Ser Tyr Leu  
1 5 10 15  
Ser Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys  
20 25 30  
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr  
35 40 45  
Ser Val Ser Ala Lys Gln Arg Val Thr Gly Leu Asp Phe Ile Pro Gly  
50 55 60  
Leu His Pro Ile Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala Val  
65 70 75 80  
Tyr Gln Gln Val Leu Thr Ser Leu Pro Ser Gln Asn Val Leu Gln Ile  
85 90 95  
Ala Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala Phe  
100 105 110  
Ser Lys Ser Cys Ser Leu Pro Gln Thr Ser Gly Leu Gln Lys Pro Glu  
115 120 125  
Ser Leu Asp Gly Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val Val  
130 135 140  
Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Ile Leu Gln Gln Leu  
145 150 155 160  
Asp Val Ser Pro Glu Cys  
165

<210> 6  
<211> 166  
<212> PRT  
<213> Homo sapiens

<400> 6  
Met His Trp Gly Thr Leu Cys Gly Phe Leu Trp Leu Trp Pro Tyr Leu  
1 5 10 15  
Phe Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys  
20 25 30  
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr  
35 40 45  
Ser Val Ser Ser Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro Gly  
50 55 60  
Leu His Pro Ile Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala Val  
65 70 75 80  
Tyr Gln Gln Ile Leu Thr Ser Met Pro Ser Arg Asn Val Ile Gln Ile  
85 90 95  
Ser Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala Phe  
100 105 110  
Ser Lys Ser Cys His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu Asp  
115 120 125  
Ser Leu Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val Val

130	135	140
Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln Leu		
145	150	155
Asp Leu Ser Pro Gly Cys		160
165		

<210> 7  
 <211> 176  
 <212> DNA  
 <213> Mus musculus

<220>  
 <221> misc\_feature  
 <222> 61, 66, 89, 151, 164  
 <223> n = A,T,C or G

<400> 7  
 gtgcaagaag aagaagatcc cagggcagga aaatgtgctg gagaccctg tgcgggtcc 60  
 nggtgntttg gtcctatctg tcttatgtnc aagcagtgcc tatccagaaa gtccaggatg 120  
 acaccaaag cctcatcaag accattgtca ncaggatcac tganatttca cacacg 176

<210> 8  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> PCR 5' primer for exon 2G7

<400> 8  
 ccagggcagg aaaatgtg 18

<210> 9  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> PCR 3' primer for exon 2G7

<400> 9  
 catcctggac tttctggata gg 22

<210> 10  
 <211> 23  
 <212> PRT  
 <213> Murine

<400> 10  
 Met Cys Trp Arg Pro Leu Cys Arg Phe Leu Trp Leu Trp Ser Tyr Leu  
 1 5 10 15  
 Ser Tyr Val Gln Ala Val Pro  
 20

<210> 11

<211> 287  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> pET-15b expression vector sequence

<221> misc\_feature  
<222> 20, 37  
<223> T7 promoter

<221> misc\_feature  
<222> 39, 64  
<223> lac operator

<221> CDS  
<222> (108)...(243)

<221> misc\_feature  
<222> 123, 137  
<223> His-Tag

<221> misc\_feature  
<222> 184, 196  
<223> Thrombin cleavage site

<400> 11  
agatctcgat cccgcgaaat taatacgact cactataggg gaattgtgag cggataacaa 60  
ttccctctca caaataattt tgtttaactt taagaaggag atataacc atg ggc agc 116  
Met Gly Ser  
1

agc cat cat cat cat cat cac agc agc ggc ctg gtg ccg cgc ggc agc 164  
Ser His His His His His His Ser Ser Gly Leu Val Pro Arg Gly Ser  
5 10 15

cat atg ctc gag gat ccc gct gct aac aaa gcc cga aag gaa gct gag 212  
His Met Leu Glu Asp Pro Ala Ala Asn Lys Ala Arg Lys Glu Ala Glu  
20 25 30 35

ttg gct gct gcc acc gct gag caa taa cta g cataaccct tggggcctct 263  
Leu Ala Ala Ala Thr Ala Glu Gln \* Leu  
40

aaacgggtct tgaggggttt tttg 287

<210> 12  
<211> 43  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> cloning region of pET-15b vector

<400> 12  
Met Gly Ser Ser His His His His His His Ser Ser Gly Leu Val Pro  
1 5 10 15

Arg Gly Ser His Met Leu Glu Asp Pro Ala Ala Asn Lys Ala Arg Lys  
                   20                                  25                                  30  
 Glu Ala Glu Leu Ala Ala Ala Thr Ala Glu Gln  
                   35                                  40

<210> 13  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Murine 5' primer

<400> 13  
 cttatgttca tatggtgccg atccagaaag tc 32

<210> 14  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Murine 3' primer

<400> 14  
 tccctctaca tatgtcttgg gagcctggtg gc 32

<210> 15  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human 5' primer

<400> 15  
 tctatgtcca tatggtgccg atccaaaaag tc 32

<210> 16  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human 3' primer

<400> 16  
 ttccttccca tatggtactc cttgcaggaa ga 32

<210> 17  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Splice acceptor site

<400> 17  
agcagtcggt a

11

<210> 18  
<211> 16  
<212> PRT  
<213> Murine

<400> 18  
Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys Thr Leu Ile Lys Thr  
1 5 10 15

<210> 19  
<211> 15  
<212> PRT  
<213> Murine

<400> 19  
Leu His Pro Ile Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala  
1 5 10 15

<210> 20  
<211> 19  
<212> PRT  
<213> Murine

<400> 20  
Ser Lys Ser Cys Ser Leu Pro Gln Thr Ser Gly Leu Gln Lys Pro Glu  
1 5 10 15  
Ser Leu Asp

<210> 21  
<211> 20  
<212> PRT  
<213> Murine

<400> 21  
Ser Arg Leu Gln Gly Ser Leu Gln Asp Ile Leu Gln Gln Leu Asp Val  
1 5 10 15  
Ser Pro Glu Cys  
20

<210> 22  
<211> 414  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> 361, 385, 397  
<223> n = A,T,C or G



<221> CDS  
<222> (38)...(181)

<221> misc\_feature  
<222> (182)...(414)  
<223> 5' region of first intron

<221> misc\_feature  
<222> 11, 28  
<223> 5' noncoding sequence of the human ob gene from  
which the HOB 1gF DNA primer was generated

<221> misc\_feature  
<222> 241, 260  
<223> intronic sequence of the human ob gene from which  
the HOB 1gR primer was generated

<400> 22  
ggttgcaagg cccaagaagc ccacacctggg aaggaaa atg cat tgg gga acc ctg 55  
Met His Trp Gly Thr Leu  
1 5  
  
tgc gga ttc ttg tgg ctt tgg ccc tat ctt ttc tat gtc caa gct gtg 103  
Cys Gly Phe Leu Trp Leu Trp Pro Tyr Leu Phe Tyr Val Gln Ala Val  
10 15 20  
  
ccc atc caa aaa gtc caa gat gac acc aaa acc ctc atc aag aca att 151  
Pro Ile Gln Lys Val Gln Asp Asp Thr Lys Thr Leu Ile Lys Thr Ile  
25 30 35  
  
gtc acc agg atc aat gac att tca cac acg gtaaggagag tatgcgggga 201  
Val Thr Arg Ile Asn Asp Ile Ser His Thr  
40 45  
  
caaagtagaa ctgcagccag ccagcactg gctcctagtg gcactggacc cagatagtcc 261  
aagaaacatt tattgaacgc ctctgaatg ccaggcacct actggaagct gagaaggatt 321  
ttggatagca cagggtcca ctctttctgg ttgtttcttn tggccccctc tgctgtctga 381  
gatnccaggg gttagnnggtt cttaattcct aaa 414

<210> 23  
<211> 48  
<212> PRT  
<213> Homo sapiens

<400> 23  
Met His Trp Gly Thr Leu Cys Gly Phe Leu Trp Leu Trp Pro Tyr Leu  
1 5 10 15  
Phe Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys  
20 25 30  
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr  
35 40 45

<210> 24  
<211> 801  
<212> DNA

<213> 'Homo sapiens

<220>

<221> misc\_feature

<222> 145, 285

<223> n = A,T,C or G

<221> CDS

<222> (291)...(648)

<221> misc\_feature

<222> 1, 290

<223> 3' of first intron

<221> misc\_feature

<222> 250, 269

<223> intronic sequence of human ob gene HOB from which  
the HOB 2gF primer was generated

<221> misc\_feature

<222> 707, 728

<223> 3' noncoding sequence of the human ob gene from  
which the HOB 2gR DNA primer was generated

<400> 24

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ctggttcttt caggaagagg ccatgtaaga gaaaggaatt gacctaggga aaattggcct 60
gggaagtgga gggaacggat ggtgtgggaa aagcaggaat ctcggagacc agcttagagg 120
cttggcagtc acctgggtgc agganacaag ggcctgagcc aaagtgggtga gggaggggtg 180
aaggagacag cccagagaat gaccctccat gccacggggg aaggcagagg gctctgagag 240
cgattcctcc cacatgctga gcacttggtc tccctcttcc tcctncatag cag tca 296
                                           Gln Ser
                                           1
```

```
gtc tcc tcc aaa cag aaa gtc acc ggt ttg gac ttc att cct ggg ctc 344
Val Ser Ser Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro Gly Leu
      5              10              15
```

```
cac ccc atc ctg acc tta tcc aag atg gac cag aca ctg gca gtc tac 392
His Pro Ile Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala Val Tyr
      20              25              30
```

```
caa cag atc ctc acc agt atg cct tcc aga aac gtg atc caa ata tcc 440
Gln Gln Ile Leu Thr Ser Met Pro Ser Arg Asn Val Ile Gln Ile Ser
      35              40              45              50
```

```
aac gac ctg gag aac ctc cgg gat ctt ctt cac gtg ctg gcc ttc tct 488
Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala Phe Ser
              55              60              65
```

```
aag agc tgc cac ttg ccc tgg gcc agt ggc ctg gag acc ttg gac agc 536
Lys Ser Cys His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu Asp Ser
              70              75              80
```

```
ctg ggg ggt gtc ctg gaa gct tca ggc tac tcc aca gag gtg gtg gcc 584
Leu Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val Val Ala
      85              90              95
```

ctg agc agg ctg cag ggg tct ctg cag gac atg ctg tgg cag ctg gac 632  
 Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln Leu Asp  
 100 105 110

ctc agc cct ggg tgc t gaggccttga aggtcactct tcctgcaagg actacgttaa 688  
 Leu Ser Pro Gly Cys  
 115

gggaaggaac tctggctttc caggatatctc caggattgaa gagcattgca tggacacccc 748  
 ttatccagga ctctgtcaat ttccctgact cctctaagcc actcttccaa agg 801

<210> 25  
 <211> 119  
 <212> PRT  
 <213> Homo sapiens

<400> 25  
 Gln Ser Val Ser Ser Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro  
 1 5 10 15  
 Gly Leu His Pro Ile Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala  
 20 25 30  
 Val Tyr Gln Gln Ile Leu Thr Ser Met Pro Ser Arg Asn Val Ile Gln  
 35 40 45  
 Ile Ser Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala  
 50 55 60  
 Phe Ser Lys Ser Cys His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu  
 65 70 75 80  
 Asp Ser Leu Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val  
 85 90 95  
 Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln  
 100 105 110  
 Leu Asp Leu Ser Pro Gly Cys  
 115

<210> 26  
 <211> 8  
 <212> PRT  
 <213> Pichia yeast

<400> 26  
 Leu Glu Lys Arg Glu Ala Glu Ala  
 1 5

<210> 27  
 <211> 4  
 <212> PRT  
 <213> Pichia yeast

<400> 27  
 Glu Ala Glu Ala  
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<210> 28  
 <211> 4

<212> PRT  
<213> Pichia yeast

<400> 28  
Leu Glu Lys Arg  
1

<210> 29  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HOB 1gF DNA primer generated from the 5' noncoding  
sequence of the human ob gene

<400> 29  
cccaagaagc ccatcctg 18

<210> 30  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HOB 1gR DNA primer generated from the first  
intronic sequence of the human ob gene

<400> 30  
gactatctgg gtccagtgcc 20

<210> 31  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HOB 2gF DNA primer generated from the first  
intronic sequence of the human ob gene

<400> 31  
ccacatgctg agcacttggt 20

<210> 32  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> HOB 2gR DNA primer generated from the 3' noncoding  
sequence of the human ob gene

<400> 32  
cttcaatcct ggagatacct gg 22

<210> 33

<210> 38  
<211> 4  
<212> PRT  
<213> Murine

<400> 38  
Gly Ser His Met  
1

<210> 39  
<211> 7  
<212> PRT  
<213> Murine

<400> 39  
Glu Asn Leu Arg Asp Leu Leu  
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